WHAT IS CLAIMED IS:

1. A pesticidal material comprising a substantially water-immiscible core material, the core material comprising a pesticide and being encapsulated in a shell having a predetermined permeability with respect to the core material, wherein the shell is formed by an interfacial polymerization of a polyisocyanate with other monomers in an encapsulation shell-forming polymerization system, said other monomers comprising a principal amine and an auxiliary amine.

2. A pesticidal material according to claim 1 wherein neither the primary amine nor the auxiliary amine is a hydrolysis product of the polyisocyanate.

3. The pesticidal material as set forth in claim 1 wherein said other monomers comprise the principal amine and the auxiliary amine in a ratio effective to provide a predetermined permeability of the shell.

4. The pesticidal material as set forth in claim 1 wherein the auxiliary amine is effective, on reaction of the polyisocyanate with said other monomers, to produce a shell of greater permeability than would be obtained by reaction of the polyisocyanate in the absence of the auxiliary amine in a reference polymerization system of composition otherwise identical to that of said shell-forming polymerization system.

5. The pesticidal material as set forth in claim 1 wherein the auxiliary amine is effective, on reaction of the polyisocyanate with said other monomers, to produce a shell of greater permeability than a shell of equal thickness as produced by reaction of the polyisocyanate with the principal amine alone.

6. The pesticidal material as set forth in claim 1 wherein the auxiliary amine is effective, on reaction of the polyisocyanate

with said other monomers, to produce a shell of lesser permeability than would be obtained by reaction of the polyisocyanate in the absence of the auxiliary amine in a reference polymerization system of composition otherwise identical to that of said shell-forming polymerization system.

7. The pesticidal material as set forth in claim 1 wherein the auxiliary amine compound is effective, on reaction of the polyisocyanate with said other monomers, to produce a shell of lesser permeability than a shell of equal thickness as produced by reaction of the polyisocyanate with the principal amine alone.

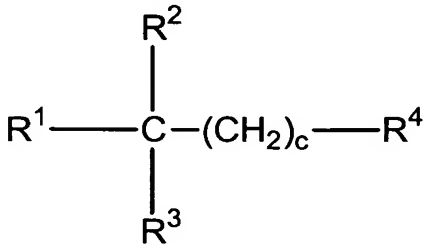
8. The pesticidal material as set forth in claim 1 wherein the auxiliary amine compound is effective, on reaction of the polyisocyanate with said other monomers, to produce a microcapsule wherein the absolute value of the arithmetic difference between the respective Hildebrand solubility parameters of the core material and shell is greater than would be obtained by reaction of polyisocyanate in the absence of the auxiliary amine in a reference polymerization system of composition otherwise identical to that of said shell-forming polymerization system.

9. The pesticidal material as set forth in claim 1 wherein the auxiliary amine compound is effective, on reaction of the polyisocyanate with said other monomers, to produce a microcapsule wherein the absolute value of the arithmetic difference between the respective Hildebrand solubility parameters of the core material and shell is less than would be obtained by reaction of the polyisocyanate in the absence of the auxiliary amine in a reference polymerization system of composition otherwise identical to that of said shell-forming polymerization system.

10. The pesticidal material as set forth in claim 1 wherein the auxiliary amine reactant is selected from the group consisting of polyalkyleneamine and an epoxy-amine adduct.

11. The pesticidal material as set forth in claim 10 wherein the auxiliary amine is a polyalkyleneamine comprising a polyetheramine, the polyetheramine being prepared by reaction of an alkylene oxide with a polyalcohol and subsequent amination of terminal hydroxyl groups of a product formed by said reaction.

12. The pesticidal material as set forth in claim 11 wherein the polyetheramine has the following formula:



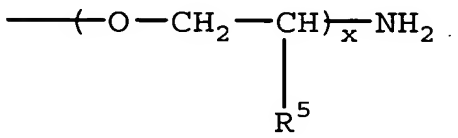
wherein:

c is a number having a value of 0 or 1;

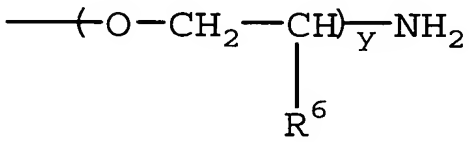
"R^1" is selected from the group consisting of hydrogen and $CH_3(CH_2)_d-$;

"d" is a number having a value from 0 to about 5;

"R^2" and "R^3" are

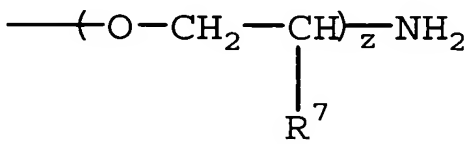


and



respectively;

"R^4" is selected from the group consisting of hydrogen and



wherein "R^5", "R^6", and "R^7" are independently selected from a group consisting of hydrogen, methyl, and ethyl; and,

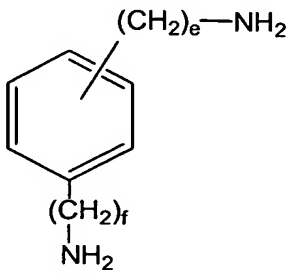
"x", "y", and "z" are numbers whose total ranges from about to 2 to about 40.

13. The pesticidal material as set forth in claim 10 wherein the auxiliary amine is an epoxy-amine adduct comprising a product of a reaction of an amine reactant selected from the group consisting of diethylenetriamine and ethylenediamine with an epoxy reactant selected from the group consisting of ethylene oxide, propylene oxide, styrene oxide, cyclohexane oxide, and diglycidyl ether of bisphenol A.

14. The pesticidal material as set forth in either of claims 6 or 7 wherein the auxiliary amine is effective, on reaction of the polyisocyanate with said other monomers, to produce a shell of greater crystallinity than would be obtained by reaction of the polyisocyanate in the absence of the auxiliary amine in a reference polymerization system of composition otherwise identical to that of said shell-forming polymerization system.

15. The pesticidal material as set forth in claim 1 wherein the auxiliary amine comprises a moiety selected from the group consisting of an aryl moiety and a cylcloalkyl moiety.

16. The pesticidal material as set forth in claim 1 wherein the auxiliary amine is selected from the group consisting of 4,4'-diaminodicyclohexyl methane, 1,4-Cyclohexanebis(methylamine), isophorone diamine, and a compound of the following formula:



wherein "e" and "f" are integers with a values which independently range from about 1 to about 4.

17. The pesticidal material as set forth in claim 1 wherein the principal amine is selected from the group consisting of epoxy-amine adducts and a diamine of the following structure:

$$H_2N\text{-}X\text{-}NH_2$$

wherein:

"X" is selected from the group consisting of $-(CH_2)_a-$ and $-(C_2H_4)-Y-(C_2H_4)-$;

"a" is an integer having a value from about 2 to about 6;

"Y" is selected from the group consisting of -S-S-, $-(CH_2)_b-Z-(CH_2)_b-$, and $-Z-(CH_2)_a-Z-$;

"b" is an integer having a value between 0 and about 4 and "a" is as defined above; and,

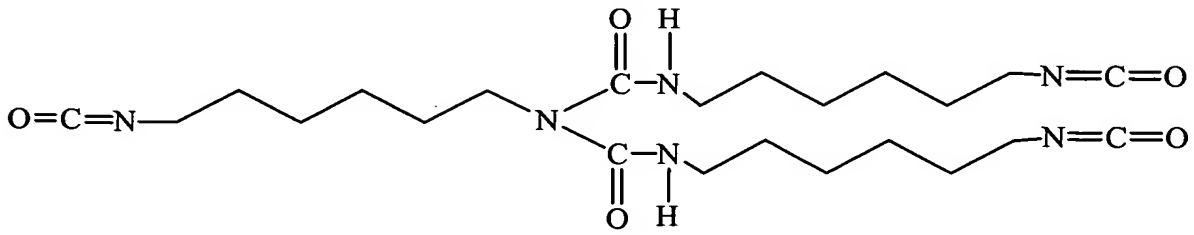
"Z" is selected from the group consisting of -NH-, -O-, and -S-.

18. The pesticidal material as set forth in claim 17 wherein the principal amine is selected from the group consisting of diethylenetriamine, triethylenetetramine, iminobispropylamine, bis(hexamethylene)triamine, epoxy-amine adducts, cystamine, triethylene glycol diamine, ethylene diamine, propylene diamine, butylene diamine, pentylene diamine, and hexamethylene diamine.

19. The pesticidal material as set forth in claim 1 wherein the polyisocyanate is selected from the group consisting of a linear aliphatic polyisocyanate, a ring-containing aliphatic polyisocyanate, and an isocyanate comprising an aromatic moiety.

20. The pesticidal material as set forth in claim 1 wherein the polyisocyanate is selected from the group consisting of a polyisocyanate having a methylenediphenyl moiety and a

biuret-containing adduct of hexamethylene-1,6-diisocyanate of the following structure:



21. The pesticidal material as set forth in claim 1 wherein the shell is substantially non-porous.

22. The pesticidal material as set forth in claim 1 wherein the shell and the core material each has a Hildebrand solubility parameter, and the absolute value of the arithmetic difference between the respective Hildebrand solubility parameters of the core material and shell is less than about 5 $Joule^{1/2}/cm^{3/2}$.

23. The pesticidal material as set forth in claim 1 wherein the pesticide comprises an agricultural compound selected from the group consisting of a herbicide, a herbicide safener, and a fungicide.

24. The pesticidal material as set forth in claim 23 wherein the pesticide comprises an acetanilide.

25. The pesticidal material as set forth in claim 23 wherein the herbicide is selected from the group consisting of acetochlor, alachlor, and triallate.

26. The pesticidal material as set forth in claim 23 wherein the pesticide further comprises a safener.

27. The pesticidal material as set forth in claim 1 wherein the core material further comprises a diluent.

28. The pesticidal material as set forth in claim 27 wherein the core material further comprises a diluent which is selected such that the core material has a Hildebrand solubility parameter which is greater than a Hildebrand solubility parameter of an otherwise identical core material which is substantially free of the diluent.

29. The pesticidal material as set forth in claim 27 wherein the core material further comprises a diluent which is selected such that the core material has a Hildebrand solubility parameter which is less than a Hildebrand solubility parameter of an otherwise identical core material which is substantially free of the diluent.

30. The pesticidal material as set forth in claim 1 wherein the ratio of the weight of the shell to the weight of the core material is less than about 33%.

31. The pesticidal material as set forth in claim 1 wherein the microcapsule has a mass to volume ratio between about 1.1 g/cm^3 and about 1.5 g/cm^3.

32. An agricultural formulation comprising a dispersion of microcapsules in an aqueous phase, a microcapsule comprising a substantially water-immiscible core material, the core material comprising a pesticide and being encapsulated in a shell having a predetermined permeability with respect to the core material, wherein the shell is formed by an interfacial polymerization of a polyisocyanate with other monomers in an encapsulation shell-forming polymerization system, said other monomers comprising a principal amine and an auxiliary amine.

33. A agricultural formulation according to claim 32 wherein neither the primary amine nor the auxiliary amine is a hydrolysis product of the polyisocyanate.

34. The agricultural formulation as set forth in claim 32 wherein said other monomers comprise the principal amine and the auxiliary amine in a ratio effective to provide a predetermined permeability of the shell.

35. The agricultural formulation as set forth in claim 32 wherein the auxiliary amine is effective, on reaction of the polyisocyanate with said other monomers, to produce shells of greater permeability than would be obtained by reaction of the polyisocyanate in the absence of the auxiliary amine in a reference polymerization system of composition otherwise identical to that of said shell-forming polymerization system.

36. The agricultural formulation as set forth in claim 32 wherein the auxiliary amine compound is effective, on reaction of the polyisocyanate with said other monomers, to produce shells of greater permeability than a shell of equal thickness as produced by reaction of the polyisocyanate with the principal amine alone.

37. The agricultural formulation as set forth in claim 32 wherein the auxiliary amine is effective, on reaction of the polyisocyanate with said other monomers, to produce shells of lesser permeability than would be obtained by reaction of the polyisocyanate in the absence of the auxiliary amine in a reference polymerization system of composition otherwise identical to that of said shell-forming polymerization system.

38. The agricultural formulation as set forth in claim 32 wherein the auxiliary amine compound is effective, on reaction of the polyisocyanate with said other monomers, to produce shells of lesser permeability than a shell of equal thickness as produced by reaction of the polyisocyanate with the principal amine alone.

39. The agricultural formulation as set forth in claim 32 wherein the auxiliary amine compound is effective, on reaction of

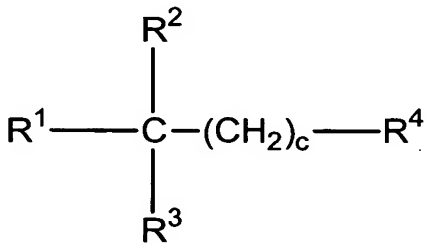
the polyisocyanate with said other monomers, to produce microcapsules wherein the absolute value of the arithmetic difference between the respective Hildebrand solubility parameters of the core material and shells is greater than would be obtained by reaction of the polyisocyanate in the absence of the auxiliary amine in a reference polymerization system of composition otherwise identical to that of said shell-forming polymerization system.

40. The agricultural formulation as set forth in claim 32 wherein the auxiliary amine compound is effective, on reaction of the polyisocyanate with said other monomers, to produce microcapsules wherein the absolute value of the arithmetic difference between the respective Hildebrand solubility parameters of the core material and shells is less than would be obtained by reaction of the polyisocyanate in the absence of the auxiliary amine in a reference polymerization system of composition otherwise identical to that of said shell-forming polymerization system.

41. The agricultural formulation as set forth in claim 32 wherein the auxiliary amine is selected from the group consisting of polyalkyleneamine and an epoxy-amine adduct.

42. The agricultural formulation as set forth in claim 41 wherein the auxiliary amine is a polyalkyleneamine comprising a polyetheramine, the polyetheramine being prepared by reaction of an alkylene oxide with a polyalcohol and subsequent amination of terminal hydroxyl groups of a product formed by said reaction.

43. The agricultural formulation as set forth in claim 42 wherein the polyetheramine has the following formula:



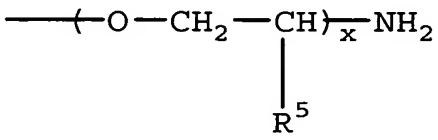
wherein:

c is a number having a value of 0 or 1;

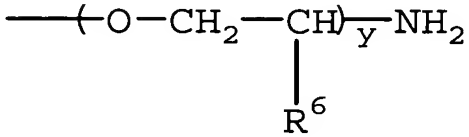
"R^1" is selected from the group consisting of hydrogen and $CH_3(CH_2)_d$-;

"d" is a number having a value from 0 to about 5;

"R^2" and "R^3" are

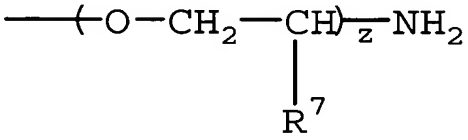


and



respectively;

"R^4" is selected from the group consisting of hydrogen and



wherein "R^5", "R^6", and "R^7" are independently selected from a group consisting of hydrogen, methyl, and ethyl; and,

"x", "y", and "z" are numbers whose total ranges from about to 2 to about 40.

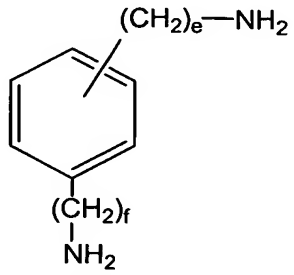
44. The agricultural formulation as set forth in claim 41 wherein the auxiliary amine is an epoxy-amine adduct comprising a product of a reaction of an amine reactant selected from the group consisting of diethylenetriamine and ethylenediamine with an epoxy reactant selected from the group consisting of ethylene oxide, propylene oxide, styrene oxide, cyclohexane oxide, and diglycidyl ether of bisphenol A.

45. The agricultural formulation as set forth in either of

claims 37 or 38 wherein the auxiliary amine is effective, on reaction of the polyisocyanate with said other monomers, to produce shells of greater crystallinity than would be obtained by reaction of the polyisocyanate in the absence of the auxiliary amine in a reference polymerization system of composition otherwise identical to that of said shell-forming polymerization system.

46. The agricultural formulation as set forth in claim 32 wherein the auxiliary amine comprises a moiety selected from the group consisting of an aryl moiety and a cylcloalkyl moiety.

47. The agricultural formulation as set forth in claim 32 wherein the auxiliary amine is selected from the group consisting of 4,4'-diaminodicyclohexyl methane, 1,4-Cyclohexanebis(methylamine), isophorone diamine, and a compound of the following formula:



wherein "e" and "f" are integers with a values which independently range from about 1 to about 4.

48. The agricultural formulation as set forth in claim 32 wherein the principal amine is selected from the group consisting of epoxy-amine adducts and a diamine of the following structure:

$$H_2N\text{-}X\text{-}NH_2$$

wherein:

"X" is selected from the group consisting of $-(CH_2)_a-$ and $-(C_2H_4)-Y-(C_2H_4)-$;

"a" is an integer having a value from about 2 to about 6;

"Y" is selected from the group consisting of -S-S-,

$-(CH_2)_b-Z-(CH_2)_b-$, and $-Z-(CH_2)_a-Z-$;

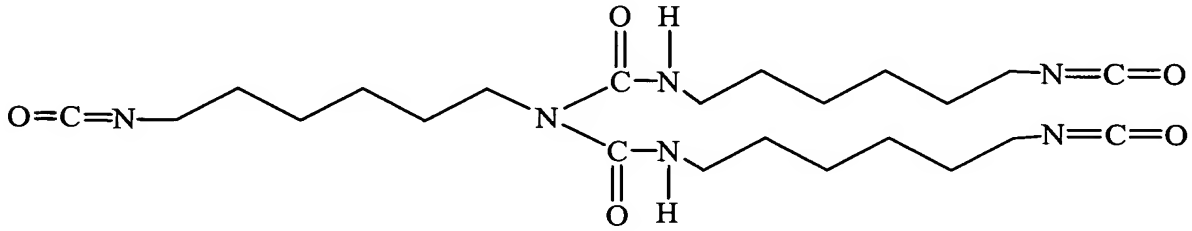
"b" is an integer having a value between 0 and about 4 and "a" is as defined above; and,

"Z" is selected from the group consisting of -NH-, -O-, and -S-.

49. The agricultural formulation as set forth in claim 48 wherein the principal amine is selected from the group consisting of diethylenetriamine, triethylenetetramine, iminobispropylamine, bis(hexamethylene)triamine, epoxy-amine adducts, cystamine, triethylene glycol diamine, ethylene diamine, propylene diamine, butylene diamine, pentylene diamine, and hexamethylene diamine.

50. The agricultural formulation as set forth in claim 32 wherein the polyisocyanate is selected from the group consisting of a linear aliphatic polyisocyanate, a ring-containing aliphatic polyisocyanate, and an isocyanate comprising an aromatic moiety.

51. The agricultural formulation as set forth in claim 32 wherein the polyisocyanate is selected from the group consisting of a polyisocyanate having a methylenediphenyl moiety and a biuret-containing adduct of hexamethylene-1,6-diisocyanate of the following structure:



52. The agricultural formulation as set forth in claim 32 wherein the shells of the microcapsules are substantially non-porous.

53. The agricultural formulation as set forth in claim 32

wherein the shell and the core material each has a Hildebrand solubility parameter, and the absolute value of the arithmetic difference between the respective Hildebrand solubility parameters of the core material and shell is less than about 5 $Joule^{1/2}/cm^{3/2}$.

54. The agricultural formulation as set forth in claim 32 wherein the pesticide comprises an agricultural compound selected from the group consisting of a herbicide, a herbicide safener, and a fungicide.

55. The agricultural formulation as set forth in claim 54 wherein the pesticide comprises an acetanilide.

56. The agricultural formulation as set forth in claim 54 wherein the herbicide is selected from the group consisting of acetochlor, alachlor, and triallate.

57. The agricultural formulation as set forth in claim 54 wherein the pesticide further comprises a safener.

58. The agricultural formulation as set forth in claim 32 wherein the core material further comprises a diluent.

59. The agricultural formulation as set forth in claim 58 wherein the core material further comprises a diluent which is selected such that the core material has a Hildebrand solubility parameter which is greater than a Hildebrand solubility parameter of an otherwise identical core material which is substantially free of the diluent.

60. The agricultural formulation as set forth in claim 58 wherein the core material further comprises a diluent which is selected such that the core material has a Hildebrand solubility parameter which is less than a Hildebrand solubility parameter of an otherwise identical core material which is substantially free of the

diluent.

61. The agricultural formulation as set forth in claim 32 wherein the ratio of the weight of the shell to the weight of the core material for a microcapsule is less than about 33%.

62. The agricultural formulation as set forth in claim 32 wherein a microcapsule has a mass to volume ratio between about 1.1 g/cm^3 and about 1.5 g/cm^3.

63. The agricultural formulation as set forth in claim 32 wherein the dispersion has a viscosity of from about 100 contopus to about 300 contopus.

64. The agricultural formulation as set forth in claim 32 wherein the microcapsules have a volume-weighted median diameter between about 2 microns and about 8 microns wherein the volume-weighted median diameter is reported by a particle size analyzer based on particle light diffraction of laser light having about a 750 mm wavelength.

65. The agricultural formulation as set forth in claim 32 wherein the microcapsules have a volumetric diameter distribution such that at least about 90% of the microcapsules on a volumetric basis have a diameter of less than about 60 microns, wherein the volumetric diameter distribution is reported by a particle size analyzer based on particle light diffraction of laser light having about a 750 mm wavelength.

66. The agricultural formulation as set forth in claim 32 comprising less than about 65 weight percent microcapsules.

67. The agricultural formulation as set forth in claim 32 further comprising an additive selected from the group consisting of a thickener, a dispersant, an antifreeze agent, a preservative, an

aqueous phase density increaser, a pH buffer, an anti-packing agent, and an anti-foam agent.

68. The agricultural formulation as set forth in claim 32 wherein the microcapsules have a weight average mass to volume ratio within about 0.2 g/cm^3 of the aqueous phase density.

69. A method for plant growth control comprising the step of applying an agricultural formulation as set forth in claim 32 to an agricultural field.

70. A process for the preparation of microcapsules, the process comprising the steps of:

preparing an emulsion comprising a continuous aqueous phase and a discontinuous oil phase, the continuous phase comprising an emulsifying agent and amine reactants which comprise a primary amine, and an auxiliary amine, the oil phase comprising a core material comprising a pesticide and the oil phase further comprising a polyisocyanate reactant; and

interfacially polymerizing the polyisocyanate reactant with the principal amine and the auxiliary amine to form an aqueous dispersion of microcapsules,

wherein a microcapsule comprises a shell having the core material encapsulated therein and wherein the principal and auxiliary amine reactants are reacted in an amine ratio effective to form a shell with a predetermined permeability with respect to the pesticide.

71. The process as set forth in claim 70 wherein the auxiliary amine reactant is selected from the group consisting of polyalkyleneamine and an epoxy-amine adduct.

72. The process as set forth in claim 71 wherein the auxiliary amine is a polyalkyleneamine comprising a polyetheramine, the polyetheramine being prepared by reaction of an alkylene oxide with

a polyalcohol and subsequent amination of terminal hydroxyl groups of a product formed by said reaction.

73. The process as set forth in claim 71 wherein the auxiliary amine is an epoxy-amine adduct comprising an amine, the amine being prepared by the reaction of an amine reactant selected from the group consisting of diethylenetriamine and ethylenediamine with an epoxy reactant selected from the group consisting of ethylene oxide, propylene oxide, styrene oxide, cyclohexane oxide, and diglycidyl ether of bisphenol A.

74. The agricultural formulation as set forth in claim 70 wherein the auxiliary amine is effective, on reaction of the polyisocyanate with said other monomers, to produce shells of greater crystallinity than would be obtained by reaction of the polyisocyanate in the absence of the auxiliary amine in a reference polymerization system of composition otherwise identical to that of said interfacial polymerization.

75. The process as set forth in claim 70 wherein the auxiliary amine reactant comprises a moiety selected from the group consisting of an aryl moiety and a cylcloalkyl moiety.

76. The process as set forth in claim 70 wherein the polyisocyanate reactant is selected from the group consisting of a linear aliphatic polyisocyanates, a ring-containing aliphatic polyisocyanate, and an isocyanate comprising an aromatic moiety.

77. The process as set forth in claim 70 wherein the pesticide comprises an agricultural compound selected from the group consisting of a herbicide, a herbicide safener, and a fungicide.

78. The process as set forth in claim 77 wherein the pesticide comprises an acetanilide.

79. The process as set forth in claim 77 wherein the herbicide is selected from the group consisting of acetochlor, alachlor, and triallate.

80. The process as set forth in claim 77 wherein the pesticide further comprises a safener.

81. The process as set forth in claim 70 wherein the core material further comprises a diluent.

82. The process as set forth in claim 70 wherein the shell is substantially non-porous.

83. The process as set forth in claim 70 wherein the emulsion has a viscosity of from about 10 contopus to about 50 contopus.

84. The process as set forth in claim 70 wherein water is less than about 1 weight percent soluble in the oil phase.

85. A method for preparing microcapsules, wherein a microcapsule comprises a polymer shell formed by reacting a first monomer with at least two other monomers, wherein the shell encapsulates a core material which comprises an active ingredient, and wherein the shell has a predetermined permeability with respect to the active ingredient, the method comprising:

selecting a first reaction set comprising the first monomer, the other monomers, and a core material composition;

reacting the first monomer with the other monomers in an encapsulation polymer shell-forming reaction system which comprises the core material to form a dispersion of microcapsules, wherein the other monomers react in a known ratio to each other to form the microcapsule shells;

measuring a characteristic half-life of the dispersion of microcapsules, the half-life being calculated from a rate of release over time of the active ingredient from the microcapsules immersed

in water;

repeating the reaction and measurement steps, for a number of iterations sufficient to characterize the relationship of half-lives of microcapsule dispersions as a function of the ratios of other monomers to each other, wherein each iteration is performed with a unique ratio of other monomers to each other; and

performing the reaction step with a ratio of other monomers to each other which correlates to a target characteristic half-life.

86. The method according to claim 85 wherein the other monomers comprise amines.

87. The method according to claim 85 wherein the first monomer is a polyisocyanate.

88. The method according to claim 87 wherein the ratio of other monomers to each other is the ratio of a first other monomer to a second other monomer.

89. The method according to claim 88 wherein the ratio of other monomers to each other is the number of functional groups reacting in the reaction step from the first other monomer divided by the number of functional groups reacting in the reaction step from the second other monomer.

90. The method according to claim 85 wherein the selected first monomer, other monomers, and core material composition are such that no other monomer ratio is sufficient to form a microcapsule dispersion having the target half-life according to the function, the method further comprising

selecting a new reaction set comprising at least one changed component which is selected from the group consisting of a different first monomer, at least one different other monomer, a different core material composition, and combinations thereof; and

repeating the reaction and measurement steps with the new

reaction set for a number of iterations sufficient to describe the characteristic half-lives of microcapsule dispersions as a function of the ratios of other monomers, wherein each iteration is performed with a unique ratio of other monomers to each other prior to performing the reaction step with a ratio of other monomers to each other which correlates to a target characteristic half-life.

91. The method according to claim 90 further comprising:

applying microcapsule dispersions having known half-lives to plants;

measuring a bioeffect for each applied microcapsule dispersion;

describing the bioeffects as a function of microcapsule dispersion half-life; and

selecting a target half-life which corresponds to a desired bioeffect.

92. A method for selecting a target reaction set for the preparation of microcapsules having a predetermined release rate, wherein a microcapsule comprises a polymer shell formed by reacting a first monomer with at least two other monomers, wherein the shell encapsulates a core material which comprises an active ingredient, and wherein the shell has a permeability with respect to the active ingredient which is sufficient to provide a bioeffective release of the active ingredient, the method comprising:

selecting a reaction set comprising the first monomer, the other monomers, and a core material composition;

reacting the first monomer with the other monomers in an encapsulation polymer shell-forming reaction system which comprises the core material to form a dispersion of microcapsules, wherein the other monomers react in a known ratio to form the microcapsule shells;

measuring a characteristic half-life of the microcapsule dispersion, the half-life being a measure of release rate and being calculated from a rate of release over time of the active ingredient from the microcapsules immersed in water;

selecting new reaction sets comprising at least one changed component which is selected from the group consisting of a different first monomer, a different ratio of other monomers to each other, at least one different other monomer, a different core material composition, and combinations thereof;

repeating the reaction, application and measurement steps for the new reaction sets for a sufficient number of iterations to prepare graph comprising a half-life line segment, a monomer line segment, and core material composition line segment, the line segments being calibrated such that a nomograph is formed for the relationship among half-lives, combinations of other monomer ratios and first monomers, and core material compositions; and

selecting a target reaction set from a selection line segment on the nomograph wherein:

the selection line segment intersects the half-life line segment, the monomer line segment, and the core material composition line segment;

the selection line segment intersects the half-life line segment at a point corresponding to a target half-life;

the target reaction set comprises an other monomer ratio and a first monomer which are described at the intersection of the selection line segment and the monomer line segment; and

the target reaction set comprises a core material composition which is described at the intersection of the selection line segment and the core material line segment.

93. The method according to claim 92 further comprising:

applying each microcapsule dispersion to plants;

measuring a bioeffect for the each applied microcapsule dispersion; and

describing the bioeffects as a function of microcapsule dispersion half-life such that the target half-life is selected which corresponds to a desired bioeffect.